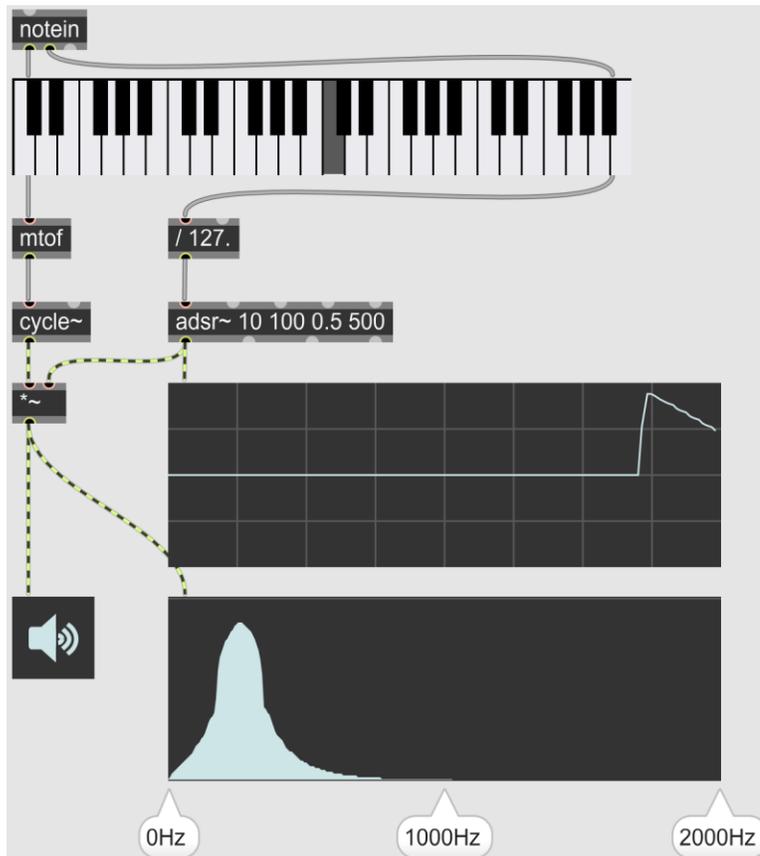


Lecture 18 – Polyphony

Instructor: Hao-Wen Dong

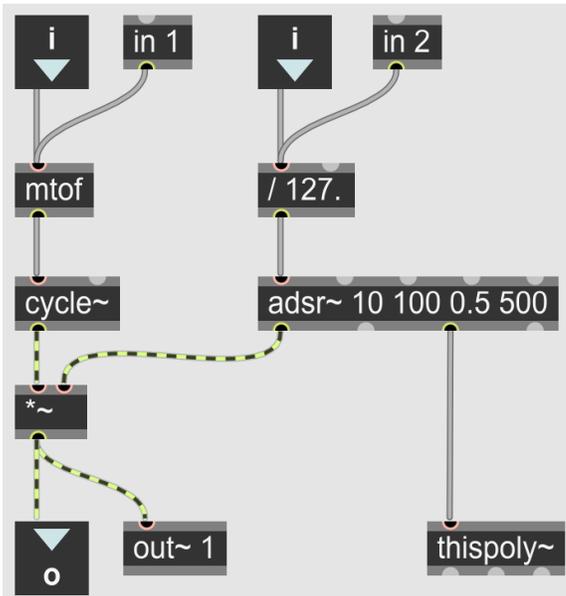
Example 1: Polyphony (“1_polyphony.maxpat”)

- Let's first create a simple sinusoid oscillator with an ADSR envelope



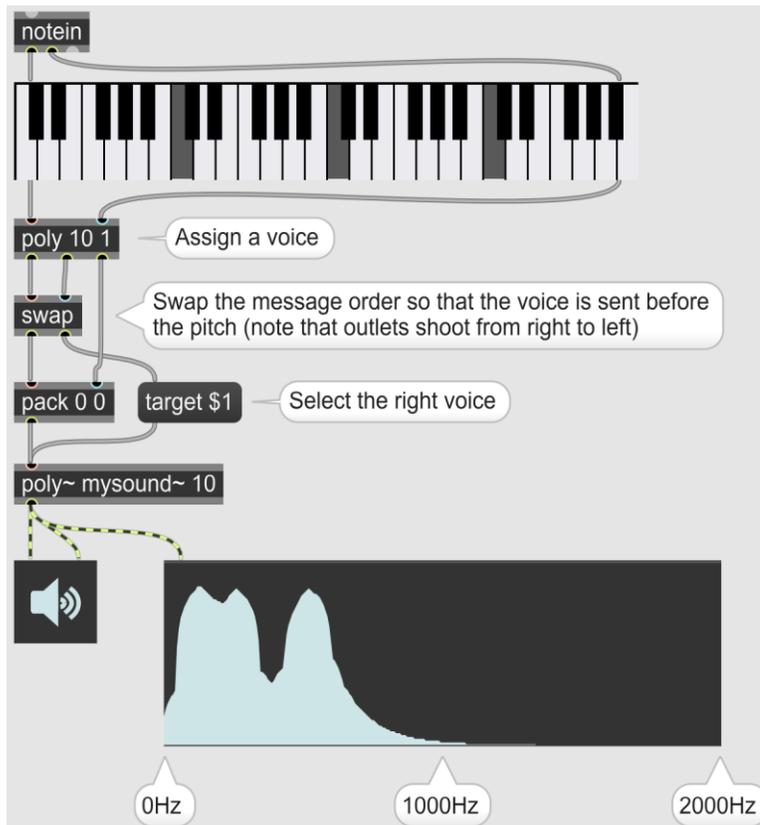
- Use the “adsr~” object to create an ADSR envelope without creating a “function” object

- Now, let's make this single-note synthesizer a standalone Max patch



- The "thispoly~" object is connected to the third outlets of the "adsr" object, which sends a "mute 1" message when it completes the envelope and sends a "mute 0" message when it restarts. The "thispoly~" allows MAX MSP to know whether the current voice is active. If a voice is not active, MAX MSP can temporarily pause the computation in that voice to avoid unnecessary computation.

- Now, we can create our polyphonic with the “poly~” object that creates multiple instances of the Max patch we specify, e.g., the “mysound~” patch file in our case



- The “poly” object handles the voice assignment that takes care of the MIDI note on and note off messages
- The “swap” object swaps the input message ordering (so the left inlet is sent to the right outlet, and the right inlet is sent to the left outlet), but more importantly, it changes the ordering when the message is sent. In Max, the outlets shoot from right to left, and that’s why we need the “swap” object so that the voice and the “target \$1” message is sent before the MIDI pitch and velocity messages.
- The “poly~” object accepts a “target X” message to select voice X